

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A marking device comprising:  
a housing encasing the device;  
a frame, pivotally connected to the housing about a first axis;  
a marking head mounted on the frame;  
a first motor to drive the marking head in the frame in a first direction parallel said first axis and spaced therefrom; and  
a second motor mounted in the housing arranged to pivot the frame with respect to the housing about said first axis in a second, substantially orthogonal direction; wherein,  
during assembly of the device, the frame and said second motor are not supported with respect to one another until said housing encasing the device is assembled on and connected to the frame and the second motor whereupon the second motor is rendered capable of pivoting the frame in the housing.
2. (Previously Presented) A marking device as claimed 1, in which the housing further comprises a handle by means of which the device is manipulatable.
3. (Previously Presented) A marking device as claimed 1, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.

4. (Previously Presented) A marking device as claimed in claim 3, in which the window is detachable from the housing for replacement with differently shaped windows for abutment against differently shaped objects to be marked.

5. (Original) A marking device as claimed in claim 3, in which the window comprises a V-section across said first direction and is adjustable on the housing in a third direction substantially orthogonal to said first and second directions.

6. (Original) A marking device as claimed in claim 3, in which the window has a facing of resilient material adapted to abut a surface to be marked.

7. (Original) A marking device as claimed in claim 1, in which said marking head has a pin arranged to be driven in a third direction substantially orthogonal said first and second directions against a surface to be marked.

8. (Previously Presented) A marking device as claimed in claim 7, in which said marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.

9. (Previously Presented) A marking device as claimed in claim 8, in which a return spring is disposed between the pin and the piston to return the pin and piston to a ready position.

10. (Original) A marking device as claimed in claim 1, in which the frame comprises a rail and a carriage slideable along said rail in said first direction.

11. (Previously Presented ) A marking device as claimed in claim 7, in which the frame comprises a rail and a carriage slideable along said rail in said first direction, and in which

said head housing is mounted substantially directly on said carriage so that the rail, carriage and head housing all lie in said third direction, said head housing having substantially the same dimensions as said carriage, so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

12. (Previously Presented) A marking device as claimed in claim 1, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes.

13. (Original) A marking device as claimed in claim 12, in which a disc spring is disposed on at least one pin between the housing and the frame to take up any tolerance between the housing and frame.

14. (Previously Presented): A marking device as claimed in claim 1, further comprising:

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

said marking head being mounted in the carriage wherein said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, said first and second directions defining a plane said third direction lying in a plane parallel said first direction; and

the frame, carriage, marking head, and first and second motors being disposed in the housing so that a centre of gravity of the frame, carriage, marking head, and first and second motors is sufficiently coincident said plane over all movements of the frame in said second direction wherein recoils of the marking head when the stylus is driven by said drive means do not cause moments about said centre of gravity.

15. (Previously Presented) A marking device as claimed in 14, in which the housing further comprises a handle by means of which the device is manipulatable.

16. (Previously Presented) A marking device as claimed in 14, in which the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, the screw being fixed.

17. (Previously Presented) A marking device as claimed in claim 16, in which the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.

18. (Original) A marking device as claimed in claim 17, in which the frame comprises a U-shaped element along the base of which is fixed a rail and between the arms of which is fixed the screw.

19. (Previously Presented) A marking device as claimed in claim 18, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line in said plane.

20. (Previously Presented) A marking device as claimed in claim 16, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.

21. (Previously Presented) A marking device as claimed in claim 19, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.

22. (Previously Presented) A marking device as claimed in claim 20, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes, and in which the housing further comprises a handle by means of which the device is manipulatable, and in which each clamshell has a handle bearing bush in the region of the clamshell forming said handle of the device, said clevis comprising pivot pins captured in said handle bearing bushes.

23. (Original) A marking device as claimed in claim 14, wherein said frame is pivotally mounted in the housing about said first axis.

24. (Previously Presented) A marking device as claimed 14, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.

25. (Previously Presented) A marking device as claimed in claim 14, in which the marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.

26. (Previously Presented) A marking device as claimed in claim 14, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.

27. (Previously Presented) A marking device as claimed in claim 25, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage so that the rail, carriage and head housing all lie in said third direction, said head housing having substantially

the same dimensions as said carriage, so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

28. (Previously Presented) A marking device as claimed in claim 23, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush, and said frame having pivot pins captured in said bearing bushes.

29. (Original) A marking device as claimed in claim 28, in which a disc spring is disposed on at least one pin between the housing and the frame to take up any tolerance between the housing and frame.

30. (Previously Presented) A marking device as claimed in claim 1, further comprising:

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

said marking head being mounted in the carriage wherein said motors are disposed substantially within the confines of the frame.

31. (Previously Presented) A marking device as claimed in 30, in which the housing further comprises a handle by means of which the device is manipulatable.

32. (Cancelled).

33. (Previously Presented): A marking device as claimed in 30, in which the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, said screw being fixed.

34. (Previously Presented) A marking device as claimed in claim 33, in which the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.

35. (Previously Presented) A marking device as claimed in claim 33, in which the frame comprises a U-shaped element having a base and arms, a rail being fixed along the base and the screw being fixed between the arms.

36. (Previously Presented) A marking device as claimed in claim 35, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line.

37. (Previously Presented) A marking device as claimed in claim 30, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.

38. (Previously Presented) A marking device as claimed in claim 35, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, rail and the rotational axis of said first motor.

39. (Previously Presented) A marking device as claimed in claim 38, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.

40. (Previously Presented) A marking device as claimed 30, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.

41. (Original) A marking device as claimed in claim 30, in which said marking head has a pin arranged to be driven in a third direction substantially orthogonal said first and second directions against a surface to be marked.

42. (Previously Presented) A marking device as claimed in claim 41, in which said marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.

43. (Original): A marking device as claimed in claim 30, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.

44. (Previously Presented) A marking device as claimed in claim 42, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage and is about the same dimensions as said carriage so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

45. (Previously Presented) A marking device as claimed in claim 30, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes.

46. (Previously Presented) A marking device as claimed in claim 1, in which said marking head has a marking point, which point is the tip of a marking pin of the marking head



and at which the marking head contacts, in use, a surface to be marked, in which said second motor has a point of application at which it effects said pivoting of the frame, and in which said first axis is disposed between, and spaced from, said marking point and said point of application.

47. (Original) A marking device as claimed in 46, in which the distance between the marking point and said first axis is greater than the distance between said first axis and said point of application.

48. (Previously Presented) A marking device as claimed in claim 46, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, in which said point of application comprises said sub-axis.

49. (Original) A marking device as claimed in claim 2, in which said handle comprises a pistol grip and includes a trigger to actuate the marking device.

50. (Original) A marking device as claimed in claim 1, further comprising a separate console controlling actuation of the motors to move the marking head in a desired pattern and to fire the marking head.

51. (Original) A marking device as claimed in claims 49, further comprising a separate console controlling actuation of the motors to move the marking head in a desired pattern and to fire the marking head, in which a control lead from said console enters a base of said pistol grip handle.

52. (Previously Presented) A marking device as claimed in claim 51, in which a distribution board is disposed in said pistol grip handle and said control lead terminates on said distribution board.

53. (Previously Presented) A marking device as claimed in claim 1, further comprising:

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

said marking head being mounted in the carriage wherein said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, said first and second directions defining a plane said third direction defining a plane parallel said first direction;

the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded;

the first motor is carried on the carriage, the screw of the first motor being fixed in the frame;

the frame comprises a U-shaped element along the base of which element is fixed a rail on which the carriage slides and between the arms of which element is fixed the screw;

the marking head, carriage, rail and the rotational axis of said first motor, are all in line in said plane.

54. (Previously Presented) A marking device as claimed in claim 53, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.

55. (Previously Presented) A marking device as claimed in claim 53, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally

mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also in line with said marking head, carriage, rail and the rotational axis of said first motor.

56. (Previously Presented) A marking device comprising:  
a housing encasing the device;  
a frame, pivotally connected to the housing about a first axis;  
a marking head mounted on the frame;  
a first motor to drive the marking head in the frame in a first direction parallel said first axis and spaced therefrom; and  
a second motor mounted in the housing arranged to pivot the frame with respect to the housing about said first axis in a second, substantially orthogonal direction; wherein during assembly of the device, the housing mechanically and operatively couples the frame to the second motor whereupon the second motor is rendered capable of pivoting the frame in the housing.

57. (Previously Presented) A marking device as claimed in claim 56, further comprising:  
a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;  
a marking head mounted in the carriage.

58. (Cancelled). A marking device comprising:  
a housing of the device;  
a frame arranged for pivotal movement with respect to the housing about a first axis;  
a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;  
a marking head being mounted in the carriage

a first motor to drive the marking head in the frame; and  
a second motor arranged to pivot the frame with respect to the housing  
about said axis in a second, substantially orthogonal, direction; wherein

said marking head includes a stylus pin and drive means to drive the pin in  
a third direction substantially orthogonal said first and second directions against a surface to be  
marked, said first and second directions defining a plane said third direction lying in a plane  
parallel said first direction;

the frame, carriage, marking head, and first and second motors being  
disposed in the housing so that a centre of gravity of the frame, carriage, marking head, and first  
and second motors is sufficiently coincident said plane over all movements of the frame in said  
second direction wherein recoils of the marking head when the stylus is driven by said drive  
means do not cause moments about said centre of gravity; and

the motors each comprise a body, a rotary armature, and a screw, on which screw the  
armature is threaded, the screw being fixed.

59. (Currently Amended) A marking device as claimed in claim [[58]] 60, in which  
the housing further comprises a handle by means of which the device is manipulatable.

60. (Currently Amended) A marking device [~~as claimed in claim 58, in which~~]  
comprising:

a housing of the device;

a frame arranged for pivotal movement with respect to the housing about a first  
axis;

a carriage mounted on the frame for translational movement in the frame in a first  
direction parallel said first axis and spaced therefrom;

a marking head being mounted in the carriage;

a first motor to drive the marking head in the frame; and

a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, said first and second directions defining a plane said third direction lying in a plane parallel said first direction;

the frame, carriage, marking head, and first and second motors being disposed in the housing so that a centre of gravity of the frame, carriage, marking head, and first and second motors is sufficiently coincident said plane over all movements of the frame in said second direction wherein recoils of the marking head when the stylus is driven by said drive means do not cause moments about said centre of gravity;

the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, the screw being fixed; and

the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.

61. (Previously Presented) A marking device as claimed in claim 60, in which the frame comprises a U-shaped element along the base of which is fixed a rail and between the arms of which is fixed the screw.

62. (Previously Presented) A marking device as claimed in claim 61, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line in said plane.

63. (Currently Amended) A marking device [~~as claimed in claim 58, further comprising~~] comprising:

a housing of the device;

a frame arranged for pivotal movement with respect to the housing about a first axis;

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

a marking head being mounted in the carriage;  
a first motor to drive the marking head in the frame; and  
a second motor arranged to pivot the frame with respect to the housing about said axis in  
a second, substantially orthogonal, direction; wherein said marking head includes a stylus pin  
and drive means to drive the pin in a third direction substantially orthogonal said first and second  
directions against a surface to be marked, said first and second directions defining a plane said  
third direction lying in a plane parallel said first direction;  
the frame, carriage, marking head, and first and second motors being disposed in the  
housing so that a centre of gravity of the frame, carriage, marking head, and first and second  
motors is sufficiently coincident said plane over all movements of the frame in said second  
direction wherein recoils of the marking head when the stylus is driven by said drive means do  
not cause moments about said centre of gravity;  
the motors each comprise a body, a rotary armature, and a screw, on which screw the  
armature is threaded, the screw being fixed; and  
a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.

64. (Previously Presented) A marking device as claimed in claim 62, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.

65. (Previously Presented) A marking device as claimed in claim 63, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes, and in which the housing

further comprises a handle by means of which the device is manipulatable, and in which each clamshell has a handle bearing bush in the region of the clamshell forming said handle of the device, said clevis comprising pivot pins captured in said handle bearing bushes.

66. (Previously Presented): A marking device comprising:
- a housing of the device;
  - a frame arranged for pivotal movement with respect to the housing about a first axis;
  - a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;
  - a marking head being mounted in the carriage
  - a first motor to drive the marking head in the frame; and
  - a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein
  - said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, said first and second directions defining a plane said third direction lying in a plane parallel said first direction;
  - the frame, carriage, marking head, and first and second motors being disposed in the housing so that a centre of gravity of the frame, carriage, marking head, and first and second motors is sufficiently coincident said plane over all movements of the frame in said second direction wherein recoils of the marking head when the stylus is driven by said drive means do not cause moments about said centre of gravity; and
  - said frame is pivotally mounted in the housing about said first axis.

67. (Previously Presented) A marking device as claimed 66, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.

68. (Previously Presented) A marking device as claimed in claim 66, in which the marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.

69. (Previously Presented) A marking device as claimed in claim 66, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.

70. (Previously Presented) A marking device as claimed in claim 68, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage so that the rail, carriage and head housing all lie in said third direction, said head housing having substantially the same dimensions as said carriage, so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

71. (Previously Presented) A marking device as claimed in claim 66, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush, and said frame having pivot pins captured in said bearing bushes.

72. (Previously Presented) A marking device as claimed in claim 71, in which a disc spring is disposed on at least one pin between the housing and the frame to take up any tolerance between the housing and frame.

73. (Previously Presented) A marking device comprising:



a housing of the device;  
a frame arranged for pivotal movement with respect to the housing about a first axis;  
a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;  
a marking head being mounted in the carriage  
a first motor to drive the marking head in the frame; and  
a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein  
said motors are disposed substantially within the confines of the frame;  
the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, said screw being fixed; and  
the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.

74. (Previously Presented) A marking device as claimed in 73, in which the housing further omprises a handle by means of which the device is manipulatable.

75. (Previously Presented) a marking device as claims in 73, in which the housing further comprises a handle by means of which the device may be manipulated.

76. (Previously Presented) A marking device as claimed in claim 73, in which the frame comprises a U-shaped element having a base and arms, a rail being fixed along the base and the screw being fixed between the arms.

77. (Previously Presented) A marking device as claimed in claim 76, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line.

78. (Previously Presented) A marking device as claimed in claim 76, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, rail and the rotational axis of said first motor.

79. (Previously Presented) A marking device as claimed in claim 78, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.

80. (Previously Presented) A marking device comprising:

- a housing of the device;
- a frame arranged for pivotal movement with respect to the housing about a first axis;
- a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;
- a marking head being mounted in the carriage
- a first motor to drive the marking head in the frame; and
- a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein
- said motors are disposed substantially within the confines of the frame;
- said marking device further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame,

and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.

81. (Previously Presented) A marking device as claimed 73, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.

82. (Previously Presented) A marking device as claimed in claim 73, in which said marking head has a pin arranged to be driven in a third direction substantially orthogonal said first and second directions against a surface to be marked.

83. (Previously Presented) A marking device as claimed in claim 82, in which said marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.

84. (Previously Presented): A marking device as claimed in claim 73, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.

85. (Previously Presented) A marking device as claimed in claim 83, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage and is about the same dimensions as said carriage so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

86. (Previously Presented) A marking device as claimed in claim 73, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes.